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|   |             |                      |                     |                  |
|---|-------------|----------------------|---------------------|------------------|
| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/675,869  | 09/29/2003  | Brian J. Cagno       | TUC920030157US1     | 6801             |
| 49080   | 7590        | 08/18/2010           | EXAMINER            |                  |
| DALE F. REGELMAN<br>QUARLES & BRADY, LLP<br>ONE SOUTH CHURCH AVENUE, STE. 1700<br>TUCSON, AZ 85701-1621 |             |                      | MARANDI, JAMES R    |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2421                |                  |
|   |             |                      | NOTIFICATION DATE   | DELIVERY MODE    |
|   |             |                      | 08/18/2010          | ELECTRONIC       |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|                              |                                      |                                     |  |
|------------------------------|--------------------------------------|-------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/675,869 | <b>Applicant(s)</b><br>CAGNO ET AL. |  |
|                              | <b>Examiner</b><br>JAMES R. MARANDI  | <b>Art Unit</b><br>2421             |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 July 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 9-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/6/2010 has been entered.

### ***Response to Amendment***

2. This action is in response to applicant's amendment filed on 7/6/2010. Claims 1- 7, and 9- 30 are presently pending. Claim 8 has been canceled.

### ***Response to Arguments***

3. Applicant's arguments filed on 7/6/2010, with respect to claims 1-7 and 9-30, have been fully considered but they are not persuasive.

3.1. Applicant argues that none of the references of the record “**singly or in combination, teach a communication link comprising a length, an end, a connector disposed on said end, and a passive transponder disposed on said computer, wherein the passive transponder includes a memory comprising information including the length**”. Page 13 of Remarks, 2<sup>nd</sup> paragraph

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

DeRolf's communication links 12 connect two nodes together, for example, in Fig. 1, communication link 12a connects nodes 2 and 10, as such said communication link has **a length** (connection between two nodes) and **an end** (termination points at each end); see ¶¶ [4], [15], and [16].

In particular, ¶ [16] discloses a path (communication link) comprising of components which read on applicant's amended claim. For example,

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communication link 14b to 16a has a length (12b), an end (16a, 14b), the end having a connector (GBIC) through the interfaces 14b and 16a.

As analyzed for claim 1, in the Office Action of 2/3/2010, DeRolf discloses interconnecting said first communication link control card and said second communication link control card using said communication link (devices 6 and 8 are connected to the FC-AL network via control cards 24l and 24d); **a connector disposed on said end** (GBIC connection), **and a transponder disposed on said connector** (GBIC card).

DeRolf is silent on transponder **includes a memory comprising information including the length.**

However, Gilliland discloses using GBIC transponders on communication **link** of Fiber Channel networks (Col. 1, lines 10-13), wherein said transponder **includes a memory comprising information** (EEPROM, Col. 1, lines 48- 60) **including said length** (Gilliland disclosure incorporates GBIC SFF-8053, GBIC Rev. 5.5 September 27, 2000, copy of which was provided by the applicant in the IDS of 9/29/2003. SFF-8053 further details the information/ tables outlining detailed information about the type of facilities, length, vendor, bit rates, etc. (see Appendix D. pages 43-52). For example, table D.1, Base ID fields indicating link length, vendor, and bit rate max and min).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf with Gilliland's invention in order to provide for flexibility, reduce hardware, and facilitate interfacing multiple devices (as also recognized by Gilliland Col. 2, lines 35-46).

GBIC transponder of the system of DeRolf and Gilliland though powered by the host (not including its own power source, and having passive circuitry as per SFF-8053, page 8, section 4.2) is not a **passive** transponder as defined by applicant (powered by RF source, page 6 of disclosure, lines 5-7).

However, hitag provides a **passive** transponder (powered by RF, page 2, col. 2, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs), comprising an EEPROM memory (Page 2, Col. 1, General Description), where the reader and transponder are enabled to securely communicate and identify each other (Page 2, Col. 2, 3rd paragraph), in a contactless fashion (Page 2, Col.2, Features).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with hitag's disclosure in order to replace the pin connectors (20 of them) of a GBIC with a contactless, easy to connect, contactless interface.

3.2. Applicant further argues that none of the references of the record singly or in combination, teach wirelessly reading the information from the memory [of the transponder] by either the first communication link control card or by the second communication link control card. Page 13 of Remarks, 3<sup>rd</sup> paragraph

Examiner disagrees. As per Office Action of 2/3/2010, Gilliland reference discloses **reading the information from the memory by either the first communication link control card or by the second communication link control card** (information is accessed/read from EEPROM, as per GBIC specification, Col. 1, lines 48- 51).

Hitag further discloses a contactless application for transmitting/ receiving data between transponder and the reader (reading information from the memory). As disclosed (page 2, 2nd Col., 5th paragraph), “absorption modulation is used to transmit data from the transponder to the reader. The transponder absorbs the magnetic field which hence modulates the current in the reader antenna”.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642

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F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case though the system of DeRolf and Gilliland is not explicit in the use of wireless (contactless) reading of the information in the memory, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with Hitag's invention in order to overcome the complexity of actual connection (pin-to-pin) by reading the information wirelessly (without physical contact and through magnetic fields).

3.3. With respect to dependent claims 2-7, applicant relies on the same arguments as for independent claim 1 which has been addressed above.

3.4. With respect to dependent claims 10-16, applicant relies on the same arguments as for independent claim 9 which has been addressed above.

3.5. With respect to dependent claims 18-24, applicant relies on the same arguments as for independent claim 17 which has been addressed above.

3.6. With respect to dependent claims 26-30, applicant relies on the same arguments as for independent claim 25 which has been addressed above.



***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4.1. Claims 17-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

With respect to claim 17, applicant recites “A computer program product encoded in an information storage medium...” and “computer readable program code”. In both recitations, the storage medium itself covers forms of non-transitory tangible media and transitory propagating signals. Furthermore, the specification does not preclude “transitory propagating signals”.

The United States Patent and Trademark Office (USPTO) is obliged to give claims their broadest reasonable interpretation consistent with the specification during proceedings before the USPTO. See *In re Zeltz*, 893 F.2d 319 (Fed. Cir. 1989). The broadest reasonable interpretation of a claim drawn to computer readable medium typically covers forms of non-transitory tangible media and

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transitory propagating signals *per se* in view of the ordinary and customary meaning of computer readable media, particularly when the specification is silent. See MPEP 2111.01.

A claim drawn to such a computer readable medium that covers both transitory and non-transitory embodiments may be amended to narrow the claim to cover only statutory embodiment to avoid a rejection under 35 U.S.C. § 101 by adding the limitation “non-transitory” to the claim. *Cf. Animals- Patentability, 1077 Off. Gaz. Pat. Office* 24 (April 21, 1987). Such an amendment would typically not raise the issue of new matter, even when the specification is silent because the broadest reasonable interpretation relies on the ordinary and customary meaning that includes signals *per se*. See Director Kappos’ January 26<sup>th</sup>, 2010 memo.

4.1.1. Claims 18-24 depends on Claim 17 are rejected by the same analysis.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4- 7, 9, 10, 12-18, and 20- 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over W.B. DeRolf et al., USPGPUB 2002/0104039 (hereinafter "DeRolf") in view of P. B. Gilliland et al., USPN 6,554,492 (hereinafter "Gilliland"), further in view of HT1DC20S30, Philips HITAG1 stick transponder, Sep. 24, 2001 (hereinafter "hitag"). Hitag reference was provided by applicant in IDS of 9/29/2003.

**6.1. Regarding claim 1, DeRolf discloses a method to provide a signal via a**

**communication link** (signaling on Fiber Channel communication links 12 in the SAN network of Fig. 1), **comprising the steps of:**

**providing an information storage and retrieval system** (SAN of Fig. 1) **comprising a controller** (SAN networks comprise of storage devices, which in turn comprise disk drives and controllers- see ¶ [15], 10<sup>th</sup> line from the end of the paragraph-), **device adapter interconnected to said controller and**

**comprising a first communication link control card** (for example GBIC 24d connected to the interface 16b), **a first RAID** (storage device of SAN network of Fig. 1, as described in ¶¶ [4], and [15]) **rank** (RAID rank is an association of disk drives, each rank contains n+1 disk drives with data striped across n data disks. See Sahai's "Performance Aspects of RAID Architecture", page 323, last 8 lines before Section 4.1) **comprising a first array of disk drives** (for example storage Device 6), **a second RAID rank comprising a second array of disk drives** (Storage device 8), **a communication loop** (Fiber Channel Arbitrated Loop, FC-AL, comprising of devices 6, 4, 10, 8, and 2, as also explained in ¶¶ [4] and [16]) **comprising a second communication link control card** (24l of storage device 8) **wherein said communication loop interconnects said first RAID rank and said second RAID rank** (6 and 8 are connected via FC-AL loop);

**providing a communication link comprising a length, an end, a connector disposed on said end, and a transponder disposed on said connector** (DeRolf's communication links 12 connect two nodes together, for example, in Fig. 1, communication link 12a connects nodes 2 and 10, as such said communication link has **a length** (connection between two nodes) and **an end** (termination points at each end); see ¶¶ [4], [15], and [16]. In particular, ¶ [16] discloses a path (communication link) comprising of components which read on applicant's amended claim. For example, communication link 14b to 16a has

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a length (12b), an end (16a, 14b), the end having a connector (GBIC connection) through the interfaces 14b and 16a, where GBIC a transponder);

**interconnecting said first communication link control card and said second communication link control card using said communication link** (devices 6 and 8 are connected to the FC-AL network via control cards 24l and 24d);

DeRolf is silent on wherein said transponder **includes a memory comprising information including said length;**

**reading said information from said memory by either said first communication link control card or by said second communication link control card; and**

**adjusting said signal based upon said information.**

Gilliland discloses using GBIC transponders on communication link of Fiber Channel networks (Col. 1, lines 10-13), wherein said transponder **includes a memory comprising information** (EEPROM, Col. 1, lines 48- 60) **including said length;** Gilliland disclosure incorporates GBIC SFF-8053, GBIC Rev. 5.5 September 27, 2000, copy of which was provided by the applicant in the IDS of 9/29/2003. SFF-8053 further details the information/ tables outlining detailed information about the type of facilities, length, vendor, bit rates, etc. (see

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Appendix D. pages 43-52). For example, table D.1, Base ID fields indicating link length, vendor, and bit rate max and min.;

**reading said information from said memory by either said first communication link control card or by said second communication link control card** (information is accessed/read from EEPROM, as per GBIC specification, Col. 1, lines 48- 51); **and**

**adjusting said signal based upon said information** (by reading the specifications, Col. 1, lines 27- 30, the host system identifies the type of GBIC and adjust signals accordingly to accommodate various facilities/links, Col. 1, lines 10- 14).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf with Gilliland's invention in order to provide for flexibility, reduce hardware, and facilitate interfacing multiple devices (as also recognized by Gilliland Col. 2, lines 35-46).

GBIC transponder of the system of DeRolf and Gilliland though powered by the host (not including its own power source, and having passive circuitry as per SFF-8053, page 8, section 4.2) is not a **passive** transponder as defined by applicant (powered by RF source, page 6 of disclosure, lines 5-7). Furthermore,

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the system of DeRolf and Gilliland is silent on **wirelessly** reading said information from said memory.

However, hitag provides a **passive** transponder (powered by RF, page 2, col. 2, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs), comprising an EEPROM memory (Page 2, Col. 1, General Description), where the reader and transponder are enabled to securely communicate and identify each other (Page 2, Col. 2, 3rd paragraph), in a contactless fashion (Page 2, Col.2, Features). Hitag further discloses a contactless (**wireless**) application for transmitting/ receiving data between transponder and the reader (reading information from the memory). As disclosed (page 2, 2nd Col., 5th paragraph), “absorption modulation is used to transmit data from the transponder to the reader. The transponder absorbs the magnetic field (**wirelessly**) which hence modulates the current in the reader antenna”.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with hitag’s disclosure in order to overcome the complexity of actual connection (pin-to-pin, 20 connectors!) of a GBIC with a contactless, easy to connect, contactless interface by reading the information wirelessly (without physical contact and through magnetic fields).

6.1.1. Regarding claim 2, the system of DeRolf, Gilliland, and hitag discloses **wherein said first communication link control card comprises a reading device** (GBIC has EEPROM memory as disclosed by Gilliland); **interconnecting said communication link to said communication link control card** (communication link connecting to the host system via GBIC), **such that said reading device** (in host system, per Gilliland Col. 1, lines 27-30) **is capable of reading said information from said memory** (EEPROM memory, per Gilliland Col. 1, lines 48- 51).

6.1.2. Regarding claim 4, the system of DeRolf, Gilliland, and hitag discloses (see Section 5.1 of SFF-8053 specification, page 11) **wherein said signal comprises an actual throughput rate and wherein said communication link comprises a nominal throughput rate, and wherein said passive transponder comprises a throughput data field, further comprising the steps of:**

**encoding said nominal throughput rate in said throughput data field** (as shown in Table D.1, 6<sup>th</sup> row, Page 44 of the SFF-8053 specification);

**reading said nominal throughput rate from said throughput data field** (the fields are encoded on the EEPROM and read by the host reader);



**determining if said nominal throughput rate is greater than or equal to said actual throughput rate** (error detection process as described next);

**operative if said nominal throughput rate is not greater than or equal to said actual throughput rate, generating an error message.** As disclosed in section 5.1 the transponder (GBIC) is driven from the host board with signals TX\_DAT. The output from transponder (GBIC) to the host board is designated as RX\_DAT. Any loss of signal, where the signal is not able to achieve the specified Bit Error Rate (BER), therefore throughput lower than an expected threshold, triggers RX\_LOS. Signal deterioration at receiver and transmitter are monitored and acted upon through TX\_FAULT and RX\_LOS. The system of Gilliland and hitag discloses that in such situation, the signals with high error rate will not be utilized. However, Gilliland and hitag is not explicit in issuing an error message (though error detection and management is further disclosed in sections E.3 and E.4 (page 54). Official notice is taken that it is well known in the art to issue an explicit error message upon encountering a fault, in order to indicate to the user and/or network administrator that the system is not performing as desired.

**6.1.3.** Regarding claim 5, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a cable type**

(communication link is a physical layer with identified types, for example copper or fiber connecting to the transponder/GBIC. Cable types are identified and reflected in Table D.1 of SFF-8053 standard), **and wherein said passive transponder comprises a cable identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, rows 8-12), **further comprising the steps of:**

**encoding said cable type in said cable identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, rows 8-12);

**reading said cable type from said cable identifier data field** (the data on EEPROM is read upon communication of transponder and the host reader),

**providing a signal comprising said cable type** (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

**6.1.4.** Regarding claim 6, the system of DeRolf, Gilliland, and hitag discloses **the step of detecting the interconnection of said communication link to said communication link control card** (Gilliland: Col. 1, lines 28- 30).

**6.1.5.** Regarding claim 7, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a version number** (Table D.1 of page 44 of SFF\_8053 standard, row 18), **and wherein said passive transponder comprises a version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, row 18), **further comprising the steps of:**

**encoding said version number in said version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, row 18);

**reading said version number from said version identifier data field** (the data on EEPROM is read upon communication of transponder and the host reader), **and**

**6.1.6. providing a signal comprising said version number** (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

**6.2.** Regarding claim 9, DeRolf discloses **an article of manufacture** ( as shown in the SAN network of Fig. 1), **comprising a controller** (SAN networks comprise of storage devices, which in turn comprise disk drives and controllers- see ¶ [15], 10<sup>th</sup> line from the end of the paragraph-), **device adapter interconnected to said controller and comprising a first communication link control card**

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(for example GBIC 24d connected to the interface 16b), **a first RAID** (storage device of SAN network of Fig. 1, as described in ¶¶ [4], and [15]) **rank** (RAID rank is an association of disk drives, each rank contains n+1 disk drives with data striped across n data disks. See Sahai's "Performance Aspects of RAID Architecture", page 323, last 8 lines before Section 4.1) **comprising a first array of disk drives** (for example storage Device 6), **a second RAID rank comprising a second array of disk drives** (Storage device 8), **a communication loop** (Fiber Channel Arbitrated Loop, FC-AL, comprising of devices 6, 4, 10, 8, and 2, as also explained in ¶¶ [4] and [16]) **comprising a second communication link control card** (24l of storage device 8) **wherein said communication loop interconnects said first RAID rank and said second RAID rank** (6 and 8 are connected via FC-AL loop), **and a computer useable medium having computer readable program code disposed therein to provide a signal via a communication link, wherein said communication link comprises a length, an end, a connector disposed on said end, and a transponder disposed on said connector** (DeRolf's communication links 12 connect two nodes together, for example, in Fig. 1, communication link 12a connects nodes 2 and 10, as such said communication link has **a length** (connection between two nodes) and **an end** (termination points at each end); see ¶¶ [4], [15], and [16]. In particular, ¶ [16] discloses a path (communication link) comprising of components which read on applicant's amended claim. For example, communication link 14b to 16a has a length (12b),

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an end (16a, 14b), the end having a connector (GBIC connection) through the interfaces 14b and 16a, where GBIC a transponder);

DeRolf is silent on wherein said transponder **includes a memory comprising information including said length;**

**reading said information from said memory by either said first communication link control card or by said second communication link control card; and**

**adjusting said signal based upon said information.**

Gilliland discloses using GBIC transponders on communication link of Fiber Channel networks (Col. 1, lines 10-13), wherein said transponder **includes a memory comprising information** (EEPROM, Col. 1, lines 48- 60) **including said length;** Gilliland disclosure incorporates GBIC SFF-8053, GBIC Rev. 5.5 September 27, 2000, copy of which was provided by the applicant in the IDS of 9/29/2003. SFF-8053 further details the information/ tables outlining detailed information about the type of facilities, length, vendor, bit rates, etc. (see Appendix D. pages 43-52). For example, table D.1, Base ID fields indicating link length, vendor, and bit rate max and min.;

**reading said information from said memory by either said first communication link control card or by said second communication link**

**control card** (information is accessed/read from EEPROM, as per GBIC specification, Col. 1, lines 48- 51); **and**

**adjusting said signal based upon said information** (by reading the specifications, Col. 1, lines 27- 30, the host system identifies the type of GBIC and adjust signals accordingly to accommodate various facilities/links, Col. 1, lines 10- 14).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf with Gilliland's invention in order to provide for flexibility, reduce hardware, and facilitate interfacing multiple devices (as also recognized by Gilliland Col. 2, lines 35-46).

GBIC transponder of the system of DeRolf and Gilliland though powered by the host (not including its own power source, and having passive circuitry as per SFF-8053, page 8, section 4.2) is not a **passive** transponder as defined by applicant (powered by RF source, page 6 of disclosure, lines 5-7). Furthermore, the system of DeRolf and Gilliland is silent on **wirelessly** reading said information from said memory.

However, hitag provides a **passive** transponder (powered by RF, page 2, col. 2, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs), comprising an EEPROM memory (Page 2, Col. 1, General Description), where the reader and transponder are enabled to securely

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communicate and identify each other (Page 2, Col. 2, 3rd paragraph), in a contactless fashion (Page 2, Col.2, Features). Hitag further discloses a contactless **(wireless)** application for transmitting/ receiving data between transponder and the reader (reading information from the memory). As disclosed (page 2, 2nd Col., 5th paragraph), “absorption modulation is used to transmit data from the transponder to the reader. The transponder absorbs the magnetic field **(wirelessly)** which hence modulates the current in the reader antenna”.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with hitag’s disclosure in order to overcome the complexity of actual connection (pin-to-pin, 20 connectors!) of a GBIC with a contactless, easy to connect, contactless interface by reading the information wirelessly (without physical contact and through magnetic fields).

6.2.1. Regarding claim 10, the system of DeRolf, Gilliland, and hitag discloses **wherein said first communication link control card** (e.g. DeRolf’s GBIC 24d) **comprises a reading device** (connection to host system reader), **where in said communication link is interconnected to said communication link control card** (communication link connecting to the host system via GBIC) **such that said reading device** (per Gilliland, Col. 1,

lines 27-30) **is capable of reading said information from said one or more data fields** (per Gilliland EEPROM memory, Col. 1, lines 48- 51; Data fields as reflected in Table D.1 of SFF-8053).

**6.2.2.** Regarding claim 12, the system of DeRolf, Gilliland, and hitag discloses (Section 5.1 of SFF-8053 specification, page 11) **wherein said signal comprises an actual throughput rate and wherein said communication link comprises a nominal throughput rate, and wherein said passive transponder comprises a throughput data field**(as shown in Table D.1, 6<sup>th</sup> row, Page 44 of the SFF-8053 specification), **said computer readable program code further comprising a series of computer readable program steps to effect:**

**reading said nominal throughput rate from said throughput data field** (the fields are encoded on the EEPROM and read by the host reader);

**determining if said nominal throughput rate is greater than or equal to said actual throughput rate** (error detection process as described next);

**operative if said nominal throughput rate is not greater than or equal to said actual throughput rate, generating an error message.** As disclosed in section 5.1 the transponder (GBIC) is driven from the host board with signals TX\_DAT. The output from transponder (GBIC) to the host board is designated as RX\_DAT. Any loss of signal, where the signal is not able to achieve the specified Bit Error Rate (BER), therefore throughput lower than



an expected threshold, triggers RX\_LOS. Signal deterioration at receiver and transmitter are monitored and acted upon through TX\_FAULT and RX\_LOS. The system of Gilliland and hitag discloses that in such situation, the signals with high error rate will not be utilized. However, Gilliland and hitag is not explicit in issuing an error message (though error detection and management is further disclosed in sections E.3 and E.4 (page 54). Official notice is taken that it is well known in the art to issue an explicit error message upon encountering a fault, in order to indicate to the user and/or network administrator that the system is not performing as desired.

**6.2.3.** Regarding claim 13, the system of DeRolf, Gilliland, and hitag discloses

**wherein said communication link comprises a cable type**

(communication link is a physical layer with identified types, for example copper or fiber connecting to the transponder/GBIC. Cable types are identified and reflected in Table D.1 of SFF-8053 standard), **and wherein**

**said passive transponder comprises a cable identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, rows 8-12),

**and wherein said cable type is encoded in said cable identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053

standard, rows 8-12), **said computer readable program code further comprising a series of computer readable program steps to effect:**

**reading said cable type from said cable identifier data field** (the data on EEPROM is read upon communication of transponder and the host reader),

**providing a signal comprising said cable type** (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

6.2.4. Regarding claim 14, the system of DeRolf, Gilliland, and hitag discloses **steps to effect detecting the interconnection of said communication link to said communication link control card** (Gilliland: Col. 1, lines 28-30).

6.2.5. Regarding claim 15, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a version number** (Table D.1 of page 44 of SFF\_8053 standard, row 18), **and wherein said passive transponder comprises a version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, row 18), **and wherein said version number is encoded in said version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, row 18), **said computer readable program code further comprising a series of computer readable program steps to effect:**

**reading said version number from said version identifier data field** (the data on EEPROM is read upon communication of transponder and the host reader), **and**

**providing a signal comprising said version number** (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

6.2.6. Regarding claim 16, the system of DeRolf, Gilliland, and hitag discloses **steps to effect detecting the interconnection of said communication link to said communication link control card** (Gilliland: Col. 1, lines 28-30).

6.3. Regarding claim 17, DeRolf discloses **a computer program product encoded in an information storage medium and usable with a programmable computer processor to provide a signal via a communication link** (signaling on Fiber Channel communication links 12 in the SAN network of Fig. 1), **wherein said computer program product is disposed in an information storage and retrieval system (SAN of Fig. 1) comprising a device adapter** (SAN networks comprise of storage devices, which in turn comprise disk drives

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and controllers/ adaptors- see ¶ [15], 10<sup>th</sup> line from the end of the paragraph-), **interconnected to said programmable computer processor and comprising a first communication link control card** (for example GBIC 24d connected to the interface 16b), **a first RAID** (storage device of SAN network of Fig. 1, as described in ¶¶ [4], and [15]) **rank** (RAID rank is an association of disk drives, each rank contains n+1 disk drives with data striped across n data disks. See Sahai's "Performance Aspects of RAID Architecture", page 323, last 8 lines before Section 4.1) **comprising a first array of disk drives** (for example storage Device 6), **a second RAID rank comprising a second array of disk drives** (Storage device 8), **a communication loop** (Fiber Channel Arbitrated Loop, FC-AL, comprising of devices 6, 4, 10, 8, and 2, as also explained in ¶¶ [4] and [16]) **comprising a second communication link control card** (24l of storage device 8) **wherein said communication loop interconnects said first RAID rank and said second RAID rank** (6 and 8 are connected via FC-AL loop); **to provide a signal via a communication link** (interconnecting said first communication link control card and said second communication link control card using said communication link; devices 6 and 8 are connected to the FC-AL network via control cards 24l and 24d); **wherein said communication link comprises a length, an end, a connector disposed on said end, and a transponder disposed on said connector** (DeRolf's communication links 12 connect two nodes together, for example, in Fig. 1, communication link 12a connects nodes 2 and 10, as such said communication link has **a length**

(connection between two nodes) and **an end** (termination points at each end); see ¶¶ [4], [15], and [16]. In particular, ¶ [16] discloses a path (communication link) comprising of components which read on applicant's amended claim. For example, communication link 14b to 16a has a length (12b), an end (16a, 14b), the end having a connector (GBIC connection) through the interfaces 14b and 16a, where GBIC a transponder);

DeRolf is silent on wherein said transponder **includes a memory comprising information including said length;**

**reading said information from said memory by either said first communication link control card or by said second communication link control card; and**

**adjusting said signal based upon said information.**

Gilliland discloses using GBIC transponders on communication link of Fiber Channel networks (Col. 1, lines 10-13), wherein said transponder **includes a memory comprising information** (EEPROM, Col. 1, lines 48- 60) **including said length;** Gilliland disclosure incorporates GBIC SFF-8053, GBIC Rev. 5.5 September 27, 2000, copy of which was provided by the applicant in the IDS of 9/29/2003. SFF-8053 further details the information/ tables outlining detailed information about the type of facilities, length, vendor, bit rates, etc. (see

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Appendix D. pages 43-52). For example, table D.1, Base ID fields indicating link length, vendor, and bit rate max and min.;

**reading said information from said memory by either said first communication link control card or by said second communication link control card** (information is accessed/read from EEPROM, as per GBIC specification, Col. 1, lines 48- 51); **and**

**adjusting said signal based upon said information** (by reading the specifications, Col. 1, lines 27- 30, the host system identifies the type of GBIC and adjust signals accordingly to accommodate various facilities/links, Col. 1, lines 10- 14).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf with Gilliland's invention in order to provide for flexibility, reduce hardware, and facilitate interfacing multiple devices (as also recognized by Gilliland Col. 2, lines 35-46).

GBIC transponder of the system of DeRolf and Gilliland though powered by the host (not including its own power source, and having passive circuitry as per SFF-8053, page 8, section 4.2) is not a **passive** transponder as defined by applicant (powered by RF source, page 6 of disclosure, lines 5-7). Furthermore,

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the system of DeRolf and Gilliland is silent on **wirelessly** reading said information from said memory.

However, hitag provides a **passive** transponder (powered by RF, page 2, col. 2, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs), comprising an EEPROM memory (Page 2, Col. 1, General Description), where the reader and transponder are enabled to securely communicate and identify each other (Page 2, Col. 2, 3rd paragraph), in a contactless fashion (Page 2, Col.2, Features). Hitag further discloses a contactless (**wireless**) application for transmitting/ receiving data between transponder and the reader (reading information from the memory). As disclosed (page 2, 2nd Col., 5th paragraph), “absorption modulation is used to transmit data from the transponder to the reader. The transponder absorbs the magnetic field (**wirelessly**) which hence modulates the current in the reader antenna”.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with hitag’s disclosure in order to overcome the complexity of actual connection (pin-to-pin, 20 connectors!) of a GBIC with a contactless, easy to connect, contactless interface by reading the information wirelessly (without physical contact and through magnetic fields).

6.3.1. Regarding claim 18, the system of DeRolf, Gilliland, and hitag discloses **wherein said first communication link card** (communication link connecting to the host system via GBIC) **comprising a reading device** (in host system, Col. 1, lines 27-30) **such that said reading device is capable of reading said information from said memory** (EEPROM memory, Col. 1, lines 48- 51).

**6.3.2.** Regarding claim 20, the system of DeRolf, Gilliland, and hitag discloses (Section 5.1 of SFF-8053 specification, page 11) **wherein said signal comprises an actual throughput rate and wherein said communication link comprises a nominal throughput rate, and wherein said passive transponder comprises a throughput data field, and wherein said nominal throughput rate is encoded in said throughput data field** (as shown in Table D.1, 6<sup>th</sup> row, Page 44 of the SFF-8053 specification), **further comprising:**

**computer readable program code which causes said programmable computer processor to read said nominal throughput rate from said throughput data field** (the fields are encoded on the EEPROM and read by the host reader);



**computer readable program code which causes said programmable computer processor to determine if said nominal throughput rate is greater than or equal to said actual throughput rate** (error detection process as described next);

**computer readable program code which, if said nominal throughput rate is not greater than or equal to said actual throughput rate, causes said programmable computer processor to generate an error message.** As disclosed in section 5.1 the transponder (GBIC) is driven from the host board with signals TX\_DAT. The output from transponder (GBIC) to the host board is designated as RX\_DAT. Any loss of signal, where the signal is not able to achieve the specified Bit Error Rate (BER), therefore throughput lower than an expected threshold, triggers RX\_LOS. Signal deterioration at receiver and transmitter are monitored and acted upon through TX\_FAULT and RX\_LOS. The system of Gilliland and hitag discloses that in such situation, the signals with high error rate will not be utilized. However, Gilliland and hitag is not explicit in issuing an error message (though error detection and management is further disclosed in sections E.3 and E.4 (page 54). Official notice is taken that it is well known in the art to issue an explicit error message upon encountering a fault, in order to indicate to the user and/or network administrator that the system is not performing as desired.

**6.3.3.** Regarding claim 21, the system of DeRolf, Gilliland, and hitag discloses

**wherein said communication link comprises a cable type**

(communication link is a physical layer with identified types, for example

copper or fiber connecting to the transponder/GBIC. Cable types are

identified and reflected in Table D.1 of SFF-8053 standard), **and wherein**

**said passive transponder comprises a cable identifier data field** (stored

in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, rows 8-12),

**and wherein said cable type is encoded in said cable identifier data**

**field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053

standard, rows 8-12), **further comprising:**

**computer readable program code which causes said**

**programmable computer processor to read said cable type from said**

**cable identifier data field** (the data on EEPROM is read upon

communication of transponder and the host reader),

**computer readable program code which causes said**

**programmable computer processor to provide a signal comprising**

**said cable type** (as described in claim 1, the signal characteristics are

adjusted according to the data reflected in the EEPROM).

**6.3.4.** Regarding claim 22, the system of DeRolf, Gilliland, and hitag discloses

**computer readable program code which causes said programmable**

**computer processor to detect the interconnection of said communication link to said communication link control card** (Gilliland: Col. 1, lines 28- 30).

**6.3.5.** Regarding claim 23, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a version number** (Table D.1 of page 44 of SFF\_8053 standard, row 18), **and wherein said passive transponder comprises a version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, row 18), **and wherein said version number is encoded in said version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF\_8053 standard, row 18), **further comprising:**

**computer readable program code which causes said programmable computer processor to read said version number from said version identifier data field** (the data on EEPROM is read upon communication of transponder and the host reader), **and**

**computer readable program code which causes said programmable computer processor to provide a signal comprising said version number** (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

6.3.6. Regarding claim 24, the system of DeRolf, Gilliland, and hitag discloses **computer readable program code which causes said programmable computer processor to detect the interconnection of said communication link to said communication link control card** (Gilliland: Col. 1, lines 28- 30).

**6.4.** Regarding claim 25, DeRolf discloses **a data storage and retrieval system** (SAN network of Fig. 1), **comprising:**

**a controller** (SAN networks comprise of storage devices, which in turn comprise disk drives and controllers- see ¶ [15], 10<sup>th</sup> line from the end of the paragraph-),

**a device adapter interconnected to said controller and comprising a first communication link control card comprising a first reading device** (for example GBIC 24d connected to the interface 16b),

**a first RAID** (storage device of SAN network of Fig. 1, as described in ¶¶ [4], and [15]) **rank** (RAID rank is an association of disk drives, each rank contains n+1 disk drives with data striped across n data disks. See Sahai's "Performance Aspects of RAID Architecture", page 323, last 8 lines before Section 4.1) **comprising a first array of disk drives** (for example storage Device 6),

**a second RAID rank comprising a second array of disk drives** (Storage device 8),

**a communication loop** (Fiber Channel Arbitrated Loop, FC-AL, comprising of devices 6, 4, 10, 8, and 2, as also explained in ¶¶ [4] and [16])  
**comprising a second communication link control card** (24l of storage device 8) **wherein said communication loop interconnects said first RAID rank and said second RAID rank** (6 and 8 are connected via FC-AL loop);

**a communication link** (devices 6 and 8 are connected to the FC-AL network via control cards 24l and 24d) **comprising a length, an end, a connector disposed on said end, and a transponder disposed on said connector** (DeRolf's communication links 12 connect two nodes together, for example, in Fig. 1, communication link 12a connects nodes 2 and 10, as such said communication link has **a length** (connection between two nodes) and **an end** (termination points at each end); see ¶¶ [4], [15], and [16]. In particular, ¶ [16] discloses a path (communication link) comprising of components which read on applicant's amended claim. For example, communication link 14b to 16a has a length (12b), an end (16a, 14b), the end having a connector (GBIC connection) through the interfaces 14b and 16a, where GBIC a transponder);

**wherein said communication link interconnects said first communication link control card and said second communication link control card** (devices 6 and 8 are connected to the FC-AL network via control cards 24l and 24d)

DeRolf is silent on wherein said transponder **includes a memory comprising information including said length;**

**reading said information from said memory by either said first communication link control card or by said second communication link control card; and**

**adjusting said signal based upon said information.**

Gilliland discloses using GBIC transponders on communication link of Fiber Channel networks (Col. 1, lines 10-13), wherein said transponder **includes a memory comprising information** (EEPROM, Col. 1, lines 48- 60) **including said length**; Gilliland disclosure incorporates GBIC SFF-8053, GBIC Rev. 5.5 September 27, 2000, copy of which was provided by the applicant in the IDS of 9/29/2003. SFF-8053 further details the information/ tables outlining detailed information about the type of facilities, length, vendor, bit rates, etc. (see Appendix D. pages 43-52). For example, table D.1, Base ID fields indicating link length, vendor, and bit rate max and min.;

**reading said information from said memory by either said first communication link control card or by said second communication link control card** (information is accessed/read from EEPROM, as per GBIC specification, Col. 1, lines 48- 51); **and**

**adjusting said signal based upon said information** (by reading the specifications, Col. 1, lines 27- 30, the host system identifies the type of GBIC

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and adjust signals accordingly to accommodate various facilities/links, Col. 1, lines 10- 14).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf with Gilliland's invention in order to provide for flexibility, reduce hardware, and facilitate interfacing multiple devices (as also recognized by Gilliland Col. 2, lines 35-46).

GBIC transponder of the system of DeRolf and Gilliland though powered by the host (not including its own power source, and having passive circuitry as per SFF-8053, page 8, section 4.2) is not a **passive** transponder as defined by applicant (powered by RF source, page 6 of disclosure, lines 5-7). Furthermore, the system of DeRolf and Gilliland is silent on **wirelessly** reading said information from said memory.

However, hitag provides a **passive** transponder (powered by RF, page 2, col. 2, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs), comprising an EEPROM memory (Page 2, Col. 1, General Description), where the reader and transponder are enabled to securely communicate and identify each other (Page 2, Col. 2, 3rd paragraph), in a contactless fashion (Page 2, Col.2, Features). Hitag further discloses a contactless (**wireless**) application for transmitting/ receiving data between

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transponder and the reader (reading information from the memory). As disclosed (page 2, 2nd Col., 5th paragraph), “absorption modulation is used to transmit data from the transponder to the reader. The transponder absorbs the magnetic field **(wirelessly)** which hence modulates the current in the reader antenna”.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with hitag’s disclosure in order to overcome the complexity of actual connection (pin-to-pin, 20 connectors!) of a GBIC with a contactless, easy to connect, contactless interface by reading the information wirelessly (without physical contact and through magnetic fields).

6.4.1. Regarding claim 26, the system of DeRolf, Gilliland, and hitag discloses:

**wherein said communication link** (e.g. DeRolf’s FC-AL)  
**interconnects said first communication link control card** (e.g. 24d of 6)  
**and said second communication link control card** (e.g. 24l of 8), **such**  
**that either said first reading device or said second reading device can**  
**read said information from said memory** (information is accessed/read  
from EEPROM, as per GBIC specification, per Gilliland Col. 1, lines 48- 51).



6.4.2. Regarding claim 27, the system of DeRolf, Gilliland, and hitag discloses **wherein said passive transponder comprises a length data field, and wherein said length is encoded in said length data field** (SFF 8253, Table D.1, rows 8-12, show cable length data fields which are encoded in the EEPROM module of the transponder).

6.4.3. Regarding claim 28, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a fiber channel communication link** (GBIC provides connectivity for fiber channel per Gilliland Col. 1, lines 10-13), **and wherein said passive transponder comprises a cable-type data field** (per SFF 8253, Annex D, e.g. Table D.1), **and wherein said cable-type data field indicates that said communication link comprises a fiber channel communication link** (as shown in Table D.1 rows 8-12, and row 6).

6.4.4. Regarding claim 29, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link further comprises a nominal throughput rate** (Table D.1, row 6), **and wherein said passive transponder comprises a throughput data field, and wherein said nominal throughput rate is encoded in said throughput data field** (Table D.1, row 6 is encoded on the EEPROM memory module).

6.4.5. Regarding claim 30, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link further comprises a cable version number** (Table D.1, row 18), **and wherein said passive transponder comprises a version data field, and wherein said version number is encoded in said version data field**(Table D.1, row 18 is encoded on the EEPROM memory module).

7. Claims 3, 11, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeRolf, in view of Gilliland, in further view of hitag, further in view of D.R. Cecchi et al., USPN 6,466,626 (hereinafter "Cecchi").

**7.1.**Regarding claim 3, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a length** (SFF-8053, Table D.1, link lengths supported, 8 through 12<sup>th</sup> rows in the table, as disclosed by Gilliland's Col. 1, lines 20-25), **and wherein said passive transponder comprises a length data field** (the data field as reflected in Table D.1 is stored in EEPROM and read from the memory by the host reader); **further comprising the steps of:**

**encoding said length in said length data field** (data fields as shown in Table D.1 are encoded in EEPROM);

**reading said length from said length data field** (as discussed for claim 1, the data is read from the EEPROM by the host reader);

**adjusting the characteristics of said signal based upon said length** (as different lengths require different signaling, as disclosed by Gilliland, Col. 1, lines 27-31 and 44- 47, the signal is adjusted accordingly)..

The system of DeRolf, Gilliland, and hitag is not explicit in disclosing adjusting **pre-emphasis** of the signal.

However, Cecchi discloses adjusting **pre-emphasis** of the signal based on cable characteristics, such as length, in order to compensate and account for attenuation and signal degradation on a cable (see abstract, Col. 2, lines 43- 67).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf, Gilliland ,and hitag with Cecchi's invention, in order to adjust signal characteristics, through pre-emphasis, to account for signal attenuation due to cable length.

**7.2.** Regarding claim 11, the system of DeRolf, Gilliland and hitag discloses **wherein said communication link comprises a length** (SFF-8053, Table D.1, link lengths supported, 8 through 12<sup>th</sup> rows in the table, as disclosed by Gilliland's Col. 1, lines 20-25), **and wherein said passive transponder comprises a length data field** (the data field as reflected in Table D.1 is stored in EEPROM and read from the memory by the host reader), **and wherein said length is encoded in said length data field** (data fields as shown in Table D.1 are encoded in EEPROM), **said computer readable program code further comprising a series of computer readable program steps to effect:**

**reading said length from said length data field** (as discussed for claim 1, the data is read from the EEPROM by the host reader);

**adjusting the characteristics of said signal based upon said length** (as different lengths require different signaling, as disclosed by Gilliland, Col. 1, lines 27-31 and 44- 47, the signal is adjusted accordingly).

The system of DeRolf, Gilliland and hitag is not explicit in disclosing adjusting **pre-emphasis** of the signal.

However, Cecchi discloses adjusting **pre-emphasis** of the signal based on cable characteristics, such as length, in order to compensate and account for attenuation and signal degradation on a cable (see abstract, Col. 2, lines 43- 67).

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Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf, Gilliland, and hitag with Cecchi's invention, in order to adjust signal characteristics, through pre-emphasis, to account for signal attenuation due to cable length.

**7.3.** Regarding claim 19, the system of DeRolf, Gilliland, and hitag discloses **wherein**

**said communication link comprises a length** (SFF-8053, Table D.1, link lengths supported, 8 through 12<sup>th</sup> rows in the table, as disclosed by Gilliland's Col. 1, lines 20-25), **and wherein said passive transponder comprises a length data field** (the data field as reflected in Table D.1 is stored in EEPROM and read from the memory by the host reader), **and wherein said length is encoded in said length data field** (data fields as shown in Table D.1 are encoded in EEPROM) **further comprising:**

**computer readable program code which causes said programmable computer processor to read said length from said length data field** (as discussed for claim 1, the data is read from the EEPROM by the host reader);

**computer readable program code which causes said programmable computer processor to adjust the characteristics of said signal based upon said length** (as different lengths require different signaling, as disclosed by Gilliland, Col. 1, lines 27-31 and 44- 47, the signal is adjusted accordingly).

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The system of DeRolf, Gilliland, and hitag is not explicit in disclosing adjusting **pre-emphasis** of the signal.

However, Cecchi discloses adjusting **pre-emphasis** of the signal based on cable characteristics, such as length, in order to compensate and account for attenuation and signal degradation on a cable (see abstract, Col. 2, lines 43- 67).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf, Gilliland, and hitag with Cecchi's invention, in order to adjust signal characteristics, through pre-emphasis, to account for signal attenuation due to cable length.

### ***Contacts***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES R. MARANDI whose telephone number is (571)270-1843. The examiner can normally be reached on 8:00 AM- 5:00 PM M-F, EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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